

CLAIMS

1. A sensor device comprising:

a sensor body;

an upper sealing member made of the same material as
5 that of said sensor body; and

a lower sealing member made of the same material as
that of said sensor body, said lower sealing member being
joined to said upper sealing member so as to house said
sensor body therewithin in cooperation with said upper
10 sealing member.

2. The sensor device according to claim 1, wherein the
material of said sensor body, said upper sealing member and
said lower sealing member is semiconductor.

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3. The sensor device according to claim 1 or 2, wherein
said upper sealing member and said lower sealing member
house said sensor body in an airtight manner.

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4. The sensor device according to any one of claims 1 to
3, which further includes:

a mounting electrode disposed on an outer surface of
at least one sealing member selected from said upper
sealing member and said lower sealing member; and

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a conductive through-path penetrating through said at

least one sealing member to electrically connect between said mounting electrode and said sensor body.

5. The sensor device according to claim 4, which further includes an insulating film disposed between said at least one sealing member and said conductive through-path.

6. The sensor device according to any one of claims 1 to 3, which further includes:

10 a mounting electrode disposed on an outer surface of at least one sealing member selected from said upper sealing member and said lower sealing member; and

a first wiring pattern extending along a junction surface of said at least one sealing member relative to the opposed sealing member to electrically connect between said mounting electrode and said sensor body.

7. The sensor device according to any one of claims 1 to 6, wherein either one or each of said upper sealing member and said lower sealing member is an integrated circuit board formed with a circuit for driving said sensor body.

8. A sensor system comprising:

the sensor device as defined either one of claims 1 to 6; and

an integrated circuit for driving said sensor device.

9. The sensor system according to claim 8, which further includes:

5 an MID substrate interposed between said sensor device and said integrated circuit to support each of said sensor device and said integrated circuit in a stacked manner, and adapted to relay the electrical connection between said sensor device and said integrated circuit; and

10 a mounting external electrode provided in said MID substrate and electrically connected to at least either one of said sensor device and said integrated circuit through said MID substrate.

15 10. The sensor system according to claim 8, wherein said integrated circuit and said sensor device are joined together to form a stacked body, wherein said sensor system further includes:

20 an MID substrate supporting said stacked body without interposing between said sensor device and said integrated circuit; and

25 a mounting external electrode provided in said MID substrate and electrically connected to at least either one of said sensor device and said integrated circuit through said MID substrate.

11. The sensor system according to claim 9 or 10, wherein said mounting external electrode is a stepwise bent pin.

5 12. The sensor system according to claim 8, wherein said integrated circuit and said sensor device are joined together to form a stacked body, wherein said sensor system further includes a mounting external electrode provided in said stacked body.

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13. The sensor system according to claim 12, wherein:

said mounting external electrode is disposed on one surface of said integrated circuit on the opposite side of the other surface thereof facing to said sensor device; and

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said integrated circuit includes an integrated circuit board formed with a circuit for driving said sensor device, and a second wiring pattern extending along a side surface of said integrated circuit board to electrically connect between said mounting external electrode and said sensor device.

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14. The sensor system according to claim 12, wherein:

said mounting external electrode is disposed on one surface of said sensor device on the opposite side of the other surface thereof facing to said integrated circuit;

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and

said sensor device includes a second wiring pattern extending along respective side surfaces of said upper and lower sealing members to electrically connect between said mounting external electrode and said integrated circuit.

15. A method of manufacturing the sensor device according to claim 4 or 5, comprising:

a first step of forming a through-hole in said at least one sealing member; and

a second step of embedding a conductive material in said through-hole to form said conductive through-path.

16. The method according to claim 15, wherein said second step includes:

a third step of depositing said conductive material on a surface of said through-hole; and

a fourth step of, after said third step, depositing said conductive material to allow said through-hole to be entirely filled therewith.

17. A method of manufacturing the sensor device according to claim 6, comprising:

a first step of forming a plating base layer on a surface of said at least one sealing member;

a second step of selectively removing said plating base layer to pattern said plating base layer;

a third step of plating a conductive material on said patterned plating base layer to form said first wiring
5 pattern;

a fourth step of forming said mounting electrode on said first wiring pattern; and

a fifth step of, after said third step at the earliest, joining said upper and lower sealing members together to
10 house said sensor body therewithin.

18. A method of manufacturing the sensor system according to any one of claims 9 to 11, comprising forming a portion electrically connecting between said MID substrate and
15 either one of said sensor device and said integrated circuit, at normal temperature.